

Amendments to the Specification

The paragraphs starting at page 5, line 12 and ending at page 6, line 7 have been amended as follows.

~~It is an object of the~~ The present invention to ~~can~~ allow printheads with various arrangements to use a common control circuit in a serial printing type printing apparatus.

~~To achieve the above object, according~~ According to one aspect of the present invention there is provided a printing apparatus which performs printing by scanning a carriage that supports a printhead having a plurality of printing elements arrayed in a predetermined direction, on a printing medium in a direction perpendicular to the predetermined direction, comprising: a printing data memory which stores printing data of a raster format; a buffer memory which has a storage area corresponding to each printing element and stores printing data stored in the printing data memory; a head parameter unit which stores information on an arrangement of the printhead; and a buffer controller which controls, in accordance with the information stored in the head parameter unit, processing of reading out the printing data stored in the printing data memory and storing the printing data in the buffer memory, and processing of reading out the printing data stored in the buffer memory.

The paragraph starting at page 11, line 4 and ending at line 11 has been amended as follows.

In this specification, “print” is means not only to form significant information such as characters and graphics, but also to form, e.g., images, figures, and patterns on printing media in a broad sense, regardless of whether the information formed is significant or insignificant or whether the information formed is visualized so that a human can visually perceive it, or to process printing media.

The paragraph starting at page 11, line 24 and ending at page 12, line 8 has been amended as follows.

Fig. 7 is a perspective view showing the schematic outer appearance of an ink-jet printer IJRA as a typical embodiment of the present invention. In Fig. 7, a pin (not shown) is attached to a carriage HC which engages with a helical groove ~~5004~~ 5005 of a lead screw ~~5005~~ 5004 that rotates via driving force transfer gears 5009 to 5011 while interlocking with forward/reverse rotation of a driving motor 5013. The carriage HC is supported by a guide rail 5003 and reciprocates in directions indicated by arrows a and b. The carriage HC supports an integral ink-jet cartridge IJC which incorporates a printhead 10 and ink tank IT.

The paragraph starting at page 14, line 12 and ending at line 19 has been amended as follows.

The buffer controller 2 also comprises a column counter 122, data pack register 123, and column division counter 124 which are used for read reading from the buffer memory 7. The data pack register holds at once a plurality of bits of 1-bit data read out from the buffer memory 7. The buffer controller 2 further comprises a color counter 125 and nozzle counter 126 which are used for storage in the buffer memory 7.

The paragraph starting at page 14, line 25 and ending at page 15, line 10 has been amended as follows.

As the outline of printing processing in the embodiment, the CPU 5 reads out a printing control program from the memory which stores a CPU control program (not shown). An operation signal is supplied from an electrical circuit (not shown) to the printing mechanism driving unit 9, and positional information or the like is received from the printing mechanism driving unit 9 which operates in accordance with the signal. Raster data stored in the printing data memory 6 is stored in the buffer memory 7 within the printing controller 1. In read reading from the buffer memory 7, the raster data is converted into a column format. The data is then transferred to the printhead 10 to print.